

# DOCUMENT RESUME

ED 084 025

PS 006 889

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 TITLE Role-Taking and Representation in Children's Drawings.  
 INSTITUTION Harvard Univ., Cambridge, Mass. Graduate School of Education.  
 SPONS AGENCY National Science Foundation, Washington, D.C.  
 PUB DATE [ 72 ]  
 NOTE 16p.  
 EDRS PRICE MF-\$0.65 HC-\$3.29  
 DESCRIPTORS Age Differences; \*Art Expression; \*Communication (Thought Transfer); \*Elementary School Students; \*Kindergarten Children; Social Influences; Thought Processes  
 IDENTIFIERS \*Egocentrism; \*Role Taking

## ABSTRACT

This study examined the correlation between the egocentricity in childhood and the artist's consideration of the viewer's perspective. A method was devised to evaluate drawings made by 82 children between 5 and 7 years old, according to criteria of comprehensibility. Verbal and nonverbal behaviors accompanying the drawings performance were analyzed, along with responses to a post drawing performance question. The findings indicated that relatively incomprehensible drawings were more likely to have been drawn by children who did not consider the perspective of the viewer.  
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## ROLE-TAKING AND REPRESENTATION IN CHILDREN'S DRAWINGS<sup>1</sup>

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### ABSTRACT

The present study examines the correlation of two phenomena heretofore viewed separately, namely egocentricity in childhood and the artist's consideration of the viewer's perspective. A method was devised to evaluate drawings made by children between the ages of five and seven, according to criteria of comprehensibility. Verbal and non-verbal behavior accompanying the drawing performance were analyzed, along with responses to a post drawing-performance question. The findings indicated that the relatively incomprehensible drawings were more likely to have been drawn by children who did not consider the perspective of the viewer.

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## ROLE-TAKING AND REPRESENTATION IN CHILDREN'S DRAWINGS

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Despite the advanced use of images in our society, we have little understanding of how pictures are produced by the individual and the mental processes they demand. In this study, visual representations and childhood egocentricity were explored to see how young children found their simple representations adequate and sufficient at one time and then progressively increased their own demands for comprehensibility, accommodating to the perspective of the viewer.

Pictorial representation requires using one thing to stand for another. Because we, as adults, have known the rules of representation so long, the need for learning rules and the possible alternative actions are not easy to recognize. We need to observe how a child arrives at the rules of equivalences that he uses in his drawing. It seems likely that he works on different sets of assumptions than those that adults take for granted. He seems to learn the rules of representation through the practice of drawing in the social context.

It has been shown in a variety of domains other than art-making that one of the shifts in abilities of the child between the ages of five and seven is role-taking: the capacity to anticipate thoughts of the "other" in a communication situation. (Piaget, 1962; Flavell, 1968; Kraus and Glucksberg, 1966.) Given that pictorial representation is an achieved process, and that it must be learned in a social context through usage with others; given also that role-taking is newly-acquired during the ages under study--it is valid to examine childhood egocentricity as related to incomprehensibility in drawing. We can expect that, since the child's grasp of the communication situation changes as he grows; this change affects his use of the drawing medium.

Encouragement for this approach comes from psychologists of art, particularly Arnheim (1965) and Gombrich (1960), who explore the nature of pictorial communication. Rather than considering drawing as a passive replica of nature, these authors describe drawing as an active and selective process. It is expected, therefore, that the pictorial representations of children might also involve a revealing process of selection: children's selectivity might be a key to the grounds of their choices of equivalences.

The selective process of drawing that Arnheim (1963, Chapter 4) describes is an activity that exploits its particular medium in order to form a structural equivalent for a referent. The child first invents the simplest equivalent, and only later, as he grows, becomes capable of handling increasing complexity and differentiation of the referent.

Writing about adults, Gombrich (1960) contends that the selective process in the production of pictures is a consequence of the artist's anticipation and elimination of alternative interpretations that might otherwise confuse the viewer. The process that he describes is a form of internalized dialogue.

"All communication consists in 'making concessions' to the recipient's knowledge. It is dictated by the context and the awareness of possible alternative interpretations that have been ruled out. The beholder's identification with the artist must find its counterpart in the artist's identification with the beholder." (1960, p. 23<sup>1</sup>.)

The present article is concerned with the relationship of graphic representation and role-taking; whether the shift from ambiguous to comprehensible drawing may be a result of an increasing awareness of "other's perspectives."

Many studies of drawings have been done, analyzing drawings independent of other behaviors. Stages have been established according to common traits in the drawings. Valuable information about children and symbol-making has been lost as a result. Exceptions to this art-as-isolated-from other behaviors approach are art for evaluation (Goodenough, 1926) and art for therapy (Kramer, 1958) in which drawing is seen as a convenient way of conveying unsociable feelings. Though these approaches are interesting, they do not study the development of children's thought processes in formulating graphic representations. Such study promises to yield not only further understanding of the child but also appreciation of the learning involved in the mature making of pictorial representations.

#### Method

##### Subjects

Eighty-two boys and girls, between the ages of five and seven, served as subjects. The ages were determined in a pilot study (Korzenik, 1971). Only by

age five were children able to sustain the proposition of the task without becoming totally distracted and after age seven the task became "too easy" and thus no longer yielded fruitful results for our purposes. The subjects then were taken from two public elementary schools, both in the Boston metropolitan area: One was in a poorer, predominately white, lower income area; while the other was also white, but an upper middle-income area. The teachers paired each subject with a friend in the class who was of comparable maturity. The friend served as the "guesser." Of the 82 children, 57% of the children were boys, and 43% girls. The subjects comprised three groups:

Group I--Kindergarteners, ages 4, 10 to 5, 10, median age 5, 6.

Group II were First graders, ages 5, 7 to 7, 1, median age 6, 4.

Group III were Second graders, ages 7, 0 to 8, 7, median age 7, 5.

Each subject was tested individually.

#### Procedure

Each subject was individually taken out of the classroom to a place free of distractions, and was told that he was going to play a "Drawing Game." The subject and the experimenter sat together at a low table upon which was placed a small drawing board with a drawing paper. The experimenter told the subject: "I am going to say three words to you. Listen to the words. Bridge, Sidewalk, Jumping. Choose one. Then draw whatever comes to your mind when you think of that word." When the drawing was finished, the subject was asked, "Do you think one of your friends could look at this drawing and guess your word?" If the subject said "Yes," he was asked to go back into the classroom to get his friend. If he said "No," the experimenter asked "Why?" and then invited the subject to try again to depict that same word. Afterwards he was asked to go to get his friend.

The 'friend' was brought back to the experimental setting and was shown the drawing. He was permitted three guesses and was discouraged from further conversation. If none of the guesses were correct, the subject had the option of making additional drawings, so that his friend might guess the word. The sequence of drawing followed by guessing was repeated until either the word was guessed or the children lost interest.

The procedure yielded data of three kinds:

1. The drawing series: The sequence of pictures drawn by each subject to represent his word-cue. (The first of these was done without explicit knowledge of the communication task, and all subsequent drawings were made with such knowledge.)
2. The movement of the child (documented by the observing experimenter) and his speech (transcribed from tape recordings) occurring during drawing performance.
3. The responses to a question asked of each subject immediately after completion of the drawing task "Why do you think your friend did/did not guess your word right away?"

#### Scoring

Measures were developed to isolate structural changes within the three different sets of data.

#### Drawings

Scoring was based on the presence or absence of certain criterial attributes. The number of attributes provided a measure of the degree of elaboration in a drawing. Many different line configurations were scored for the same attribute if they were all formulated for the same purpose. For example, for bridge, different graphic forms could be scored for the attribute "length," i.e.,  or . Thus the attributes were the

graphic units that cannot be further divided without losing the meaning of the part in relation to the whole of the picture. Scorers who were not informed about subject's school but did know the subject's age received a Guide to the Attributes for each of the cue-words, including descriptions like these. The following is a sample, from the Guide for Bridge pictures:

- "Thingness" - Any mark that is used to designate bridge. It is any mark toward which a child might point and say, "There, that's the bridge!" In the majority of the series, this is an overness form described with an arc (∩). Any other form is equally acceptable.
- Function - Any marks that indicate that people, cars and/or animals going over the "thingness" form.
- Enclosure/  
Solidity - Any thickening or marks that describe the material of which bridge is made, e.g., stones, bricks, grids, railings; any thickening of the "thingness" form that indicated solidity. Any form other than a single line.
- Length - Any "thingness" for bridge that is longer than it is high.
- Underness - Any mark that indicates that there is something underneath the bridge. This includes water, boats, ducks and traffic, street lights, highways.

#### Behavior Scale

By analyzing observer notes and tape recordings, thirteen behaviors were identified that occurred with considerable frequency. These behaviors were scored on the basis of whether or not a child performed the particular behavior rather than the frequency with which he performed it. Scorers were given the experimenter's observation notes, the tape recording transcription and a Guide to Scoring Behaviors. The guide stipulated the criteria for scoring each behavior. Some examples are:

Verbal discriminations  
not shown on paper

Child describes something he thinks will help clarify his representation. He says it but does not draw it.

Acts out/story  
Talks to picture

Child makes sounds or words that would be made by elements within the picture. In these cases representation of the referent is outside the limits of the page boundaries.

Conceals meaning

Child deliberately aims to make it hard for GC to guess. Assumes his drawing is otherwise easy to guess. Child reverses the rules of the "game."

Awareness of one's  
medium

Child talks about the drawing material. Also count instances when child speaks about a line standing for something else.

Analyses Feedback of  
guesses  
Uses Feedback

Child--on his own initiative--realizes that there is ambiguity in his drawing when he looks at it after it is drawn. May direct himself to change something as a result of what he sees.

Responses to the question, "Why do you think that ---- did/did not guess your word right away?" were divided into three categories:

- Category I -- Drawing-child attributes the guesser's response to an irreversible condition of the guesser, i. e., "He's stupid" or "He wasn't there to hear the word!"
- Category II -- Drawing-child attributes the guesser's response to an alterable condition of the guesser, i. e., "He should have looked harder" or "He wasn't thinking very well."
- Category III -- Drawing-child attributes the responsibility for the success or failure of the guesser to the drawing-child's own actions, i. e., "It looked like an igloo the way I made it, so he couldn't guess bridge" or "There is something tricky about my picture."

Responses were scored as one of these three types. If there were mixed categories in the response, the lower of the categories was scored.

### Results

In the results, both schools' data are combined and differences between schools mentioned only when relevant. Distinct structural changes in the performances of children between the ages of five and seven were shown by all three scores. These shifts demonstrate the changing, active, selective nature of drawing.

When the "guesser" did not understand the meaning of the picture, the drawing-child resorted to a variety of means to communicate effectively. The various means corresponded, in part at least, to the differences in how the drawing-child understood his task. The child's new graphic, motor, and verbal performances demonstrated a change in the child's awareness of the need to make his representation explicit on the paper. Those young children who believed that they were not responsible for the success of their communication tended to act out (by means of gestures) and talk out their representations. Such a child might call his hand a car, move it along a line drawn on a paper and say, "See here's the car." Other children who realized that they were responsible for their communication's success, knew that they must make their intentions explicit on the paper. They would form their representation all in lines on a paper. Such children, if drawing a car, would make both the road line and the car shape out of pencil lines on paper.

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SEE TABLE 1

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The Drawings. Changes in the percent of the total number of possible attributes used by the children within their whole drawing series are shown in Table 1. This increase in the percentage of attributes occurred for each of the three cue-words, and for both school populations.

Though increase in attributes occurred for all three cue-words, there were differences between the patterns of increase that were a function of the word. Bridge drawings included a high proportion of total attributes in the kindergarten and thus showed

less dramatic increases, with increase in S's age. Bridge drawings showed only a 6% increase in attributes between the kindergarten and second grade, whereas both Jumping and Sidewalk increased 14%. The results suggest that for each cue-word there are individual differences in the complexity required, in terms of criterial attributes.

The results also show that there are differences between the two schools in terms of their inclusion of attributes. There is a greater proportion of increase in attributes for the lower-income school's second grade than for the upper-middle-income school's second grade, thus narrowing the gap that originally existed between the two kindergarten samples.

Behaviors. Table 1 shows the changes in frequency of the thirteen observed behaviors.

The change of frequency revealed a shift between two levels of competence:

(1) making context-dependent undifferentiated gestural-verbal-graphic representation that are only decipherable because the observer was present and witnessed the whole behavioral context in which the drawing was made. Examples of this are telling a story, acting out, or making verbal discriminations not shown on the paper. (See Behaviors 1-7)

(2) the now differentiated graphic representation is viewed by the drawing-child as if he did not know what it depicted. By pretending that he is the viewer, he analyzes the effect of his lines. Examples of such behavior are analyzing feedback, telling about the viewer, and predicting his guesses. (See Behaviors 8-13)

The results revealed that behaviors that predominated in kindergarten declined in frequency by second grade, while new behaviors were found to dominate amongst the performances of the older children. Context-dependent and inefficient behaviors tended to diminish as communication-directed and efficient behaviors increased. Thus a behavior such as:

acts out/tells story that occurred amongst 30% of the kindergarteners dropped to 11% by second grade. By contrast, "Analysing Feedback" increased from 32% in kindergarten to 50% by second grade. This is an efficient behavior in which the child--on his own initiative--realized that there is ambiguity in his drawing. He looked at it as if he did not know the intended referent.

### Responses

The changes in the children's responses are indicated on Table 1. The drawing-task is conceived of differently by different drawing children. The results indicate that the children's responses shift with increase in age.

Response I. Suggests that the drawing child believes that his intended referent is self-evident. The drawing child cannot thus be responsible if the picture is not understood. The fault unquestionably rests with the viewer.

Response II. Still suggests that the drawing child believes that his intention is clear. Though unsuccessful communication is still the viewer's fault, the viewer's failure is alterable. "He might have looked harder."

Response III. Suggests that the drawing child is ready to accept responsibility for his share in the communication. He no longer believes his meaning is self-evident. He sees that his own lines may be ambiguous and that he may do something to help the viewer.

The results show that the highest frequency of Attitude I occurred amongst the kindergarteners. With increase in age, Ss were found to increase Attitude III type responses. With increase in age, the child increases his awareness of his own responsibility for the effectiveness of his communication.

### Interrelationship of Results

The results show three simultaneous changes: (1) the drawings, measured by the Attributes Tables, show increasing differentiation of the referent within the graphic medium, while (2) the Behavior Scale shows a reduction in behaviors such as "extra-pictorial acting-out," "verbal elaboration" and "forgetting." The results show that the child has made these adaptations at the time when (3) he has become aware of his responsibility in the communication situation as indicated by the Attitude Chart.

Thus children seem to learn that communication is contingent upon what is visible on the paper and learn to inhibit any extraneous behavior that is outside the graphic medium. This learning is exemplified in the Jumping series. It is common for a five-year-old to place a figure on the paper without reference to the paper's boundaries. The bottom edge is not necessarily the "bottom" or downward direction. The paper is an undifferentiated area in which the graphic event takes place. With increase in age, there is a shift toward the use of the bottom edge of the paper as downward direction: the paper's space and particularly its edges become differentiated. This seems only to occur when the child realizes that the viewer does not read the paper's edges as lines. If he intends to have the bottom read as "ground" he needs specifically to articulate that by drawing a line within the page, the ground line. Thus, we find the diminution of the bottom edge of the paper being confounded with the groundline Kindergarten, 88%; First Grade, 72%, Second Grade, 40%. (The eighty-eight percent for kindergartners may be slightly excessive because in some cases it is difficult to ascertain when the child has simply placed the figure in an undifferentiated space without implying that the bottom edge is the groundline.)

## Discussion

It is all too easy for adults to take for granted the processes that are effective tools for them. The results reveal the problems that the five year old had in making pictorial representations. Five-year-olds tended to presume that their drawings were self-evident (as indicated by the fact that they attributed the flaw to the guesser,) and therefore had no reason to look back and to analyse the effects of their drawings. The drawing-child's analysis of his drawing seemed to be related to his awareness of the need for such analysis. It should be mentioned that Hochberg and Brooks (as described in Hochberg, 1964) have found that children by the age of two have no difficulty in identifying referents from line drawings: picture-reading presents no problems. Thus the predicament of the five-year-old drawing-child in this study is all the more curious. If he can "read" the referent in others' line drawings, why does he not recognize the inadequacy of his own?

This study suggests that at first there is a separation of graphic production and analysis of feedback from the drawing. At first the child draws without looking back and monitoring what he is drawing. This finding resembles that of Berner (1971), who found that five-year-olds separated speech production from listening to the feedback of that production until, by the age of seven, they were capable of social role-taking. It seems that the child simply does not use his ability to "read" pictures when he is newly engaged in the production of drawings.

There seems to be a relationship between the child's awareness of the needs of the viewer (role-taking) and his analysis of feedback. His increasing concern for the viewer is shown by his prediction of guesses and inclusion of pictorial "clues" (so-called by the child). It seems that comprehensible pictures are a result of the drawing-child's awareness of the viewer and that he is performing, as Gombrich indeed says artists do, by eliminating alternative interpretations, narrowing the possibilities of what may be read from a particular

graphic configuration. The precise relationship in time of role-taking and analysis of feedback needs to be examined more closely. It may be that role-taking without producing a product (e.g., a drawing) occurs earlier and that its integration into a system of production may only cause a temporary regression which later disappears. Longitudinal studies might clarify this ambiguity.

It is clear from these results that picture production evolves in the social context. Children increase the complexity within their drawings given the social opportunity to interact and get feedback. The appropriate use of the medium, involving identification of the viewer's locus of attention and the referent's key attributes, seems to be contingent upon realistic grasp of their relationship to the viewer.

The findings of this study suggest the primacy of the social context of art, historically as well as in the development of pictorial representation in childhood. Pictorial representation, which is so often construed as a passive replica of nature, seems actually to be a response to a social milieu.

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Footnotes \*

1. Preparation of this paper was in part supported by Project Zero, of the Harvard Graduate School of Education, operating under National Science Foundation Grant # GB-31064.
2. I would like to thank Dr. Rudolf Arnheim, Dr. Robert Anderson, and Dr. Courtney Cazden, of Harvard University, for their valuable comments during the course of this research. Thanks also go to Dr. Jacqueline Goodnow, of Macquarie University and Dr. David Perkins and Dr. Cazden of Harvard University, for their helpful comments on the present article.

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TABLE 1

RESULTS OF ATTRIBUTE SCORES, BEHAVIOR FREQUENCIES AND RESPONSE ATTITUDES

| ITEM                                                                              | GROUP  |              |               |
|-----------------------------------------------------------------------------------|--------|--------------|---------------|
|                                                                                   | I - Kg | II - 2nd Gr. | III - 3rd Gr. |
| Attributes (% of total number of attributes used in whole series of all children) | 54%    | 63%          | 65%           |
| Behaviors (% of children in each group)                                           |        |              |               |
| 1. Verbal Discrimination                                                          |        |              |               |
| Not Shown on Paper                                                                | 22%    | 13%          | 5%            |
| 2. Acts Out/Tells Story                                                           | 30     | 19           | 11            |
| 3. Forgets Word Cue                                                               | 39     | 38           | 18            |
| 4. Gives Irrelevant Clues                                                         | 29     | 7            | 17            |
| 5. Enlarges/Multiplies                                                            |        |              |               |
| Same motif                                                                        | 18     | 20           | 12            |
| 6. Conceals the Referent                                                          | 17     | 15           | 12            |
| 7. Verbal Clues Given                                                             | 20     | 40           | 27            |
| 8. Awareness of One's Medium                                                      | 29     | 41           | 45            |
| 9. Analyses Feedback                                                              | 32     | 59           | 50            |
| 10. Predicts Guesses                                                              | 12     | 12           | 20            |
| 11. Pictorial Clues Given                                                         | 12     | 15           | 24            |
| 12. Item-Elimination                                                              | 4      | 9            | 12            |
| 13. Talks About Guessing Child                                                    | 7      | 58           | 25            |
| Response Attitudes (% of children in each group)                                  |        |              |               |
| I - Drawing-child blames Irreversible                                             |        |              |               |
| Condition of Guesser                                                              | 35%    | 0            | 16%           |
| II - Drawing-child Blames Reversible                                              |        |              |               |
| Condition of Guesser                                                              | 22%    | 30%          | 8%            |
| III - Drawing-child sees self as Responsible                                      |        |              |               |
| for Communication                                                                 | 43%    | 70%          | 76%           |